The Economic Impact of Bioscience in Connecticut and All That: Retrospective and Prospective

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October 2018

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Progression

- Initial Planning (P10-104)
- The Biosciences Lens:
  - Expected Spin-Offs
- Jackson GM Laboratories (JAX-GM)
  - Prospects
  - Actuals
- Current Tracking
- Prospects

Initial Plan (P10-104)

- 2008 American Society of Physicians and Surgeons recommends 40% expansion of medical school
- UConn's Schools of Medicine and Dentistry propose 30% expansion in enrolment with:
  - Capital costs of $365 million under Governor Rell adding teaching space and 50 additional live beds
- 30% additional faculty over four years with:
    - 50 clinicians.

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Inclusion of Biosciences

- 2011 New Biosciences Center with 50 full scientists Professors to the 50 clinicians plus support staff (684 in total)
- New teaching hospital
- Conversion of old hospital to R&D
- Capital costs of $846 million
- Modest assumption of one commercial innovation spin-off per 12.5 patents.
- Transfers of IP to CT firms double that

Projected Impacts of Biosciences to 2037

- New State revenues of $916 million
- More than covering the state's $519 million investment
- PI up by $4.6 billion by 2037
- DPI up by $3.7 billion in 2037
- Employment impacts:
  - During construction 2011-2018 of 18,300
  - Post construction 2,170 to 16,400 to 2019 to 2037

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Actual vs. Projected Impacts of Biosciences to 2017

- Some John Dempsey renovations, thwarted by the need to complete $66 million in funding, construction of $450 million will be completed by 2018

- By end of 2016, 5,903 direct construction jobs created when 5,402 expected.

- Medical school enrolment in the freshman class of 2017 reached 100 up 33% from 2012 and therefore 3% above target;
- Parallel numbers for dental freshmen were 49 up 22.5%; this is three enrolments shy of the target of 52 or 30% above the pre-expansion enrolment of 40

- By end of FY 16, basic science faculty hirers reached 68 with an additional three joint hirers with JAX-GM, and another 10 new positions coming on line in FY 17

- UConn clinical faculty increased by 179, well above the expected 111;
- In FY 16 grant awards reached $ 85 million, exceeding the pre-expansion wards by $51 million; and,
- School of Medicine has received new and renewal awards worth $77 million.

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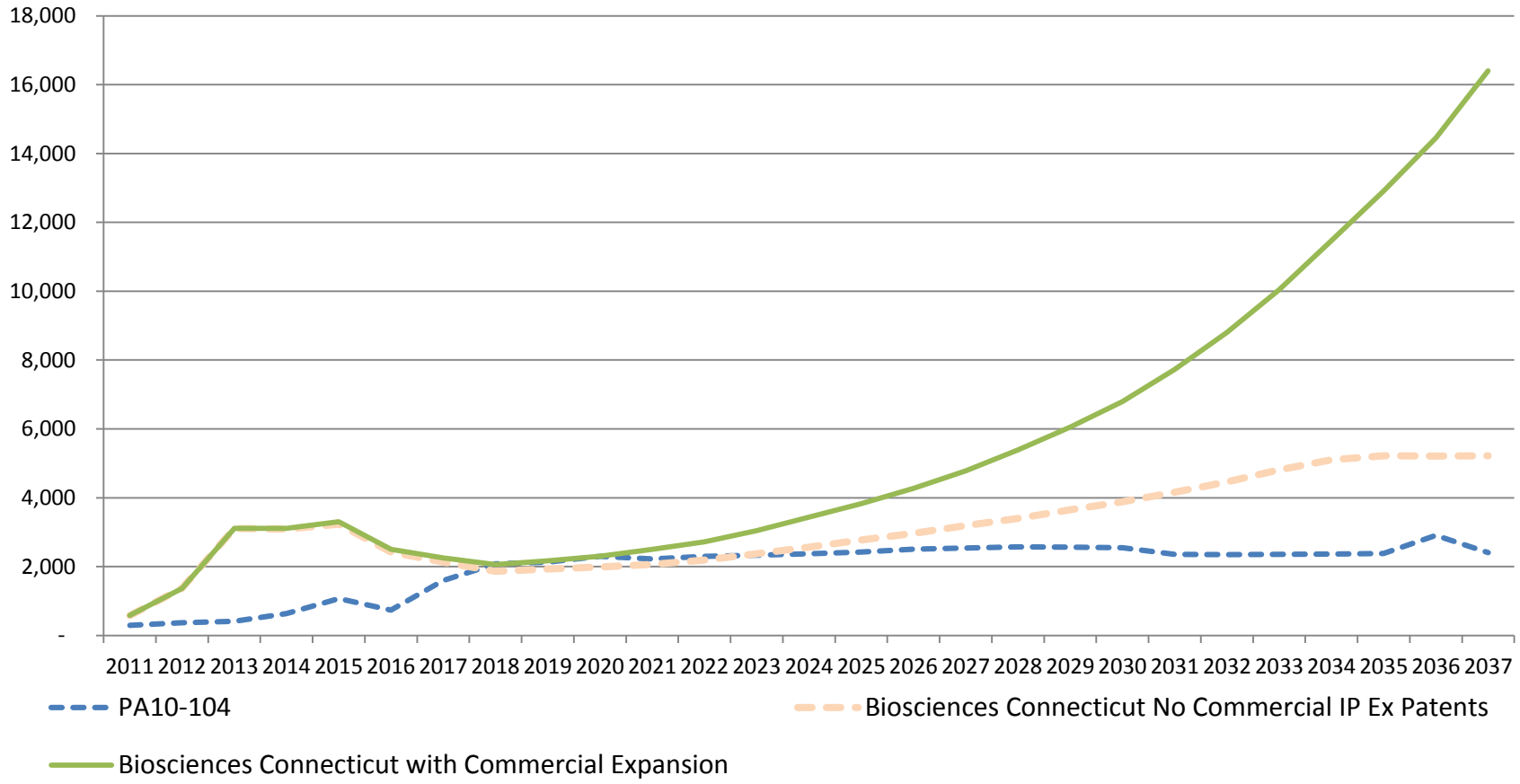
IP Developments: Biosciences to 2017

- Received 69 invention disclosures
- Occupants filed 91 patent applications;
- 31 patents issued, (CCEA had expected 17 from the School of Medical expansion inclusive of the Biosciences Center);
- Executed 11 licenses and options
- Generated $960 K in licensing revenues
- Assisted two start-ups. (FY 15)

- New Haven based Alexion Pharmaceuticals and UConn have announced joint funding to develop life-saving therapies for patients with rare and devastating diseases.

Expected Developments With and Without Biosciences: Employment



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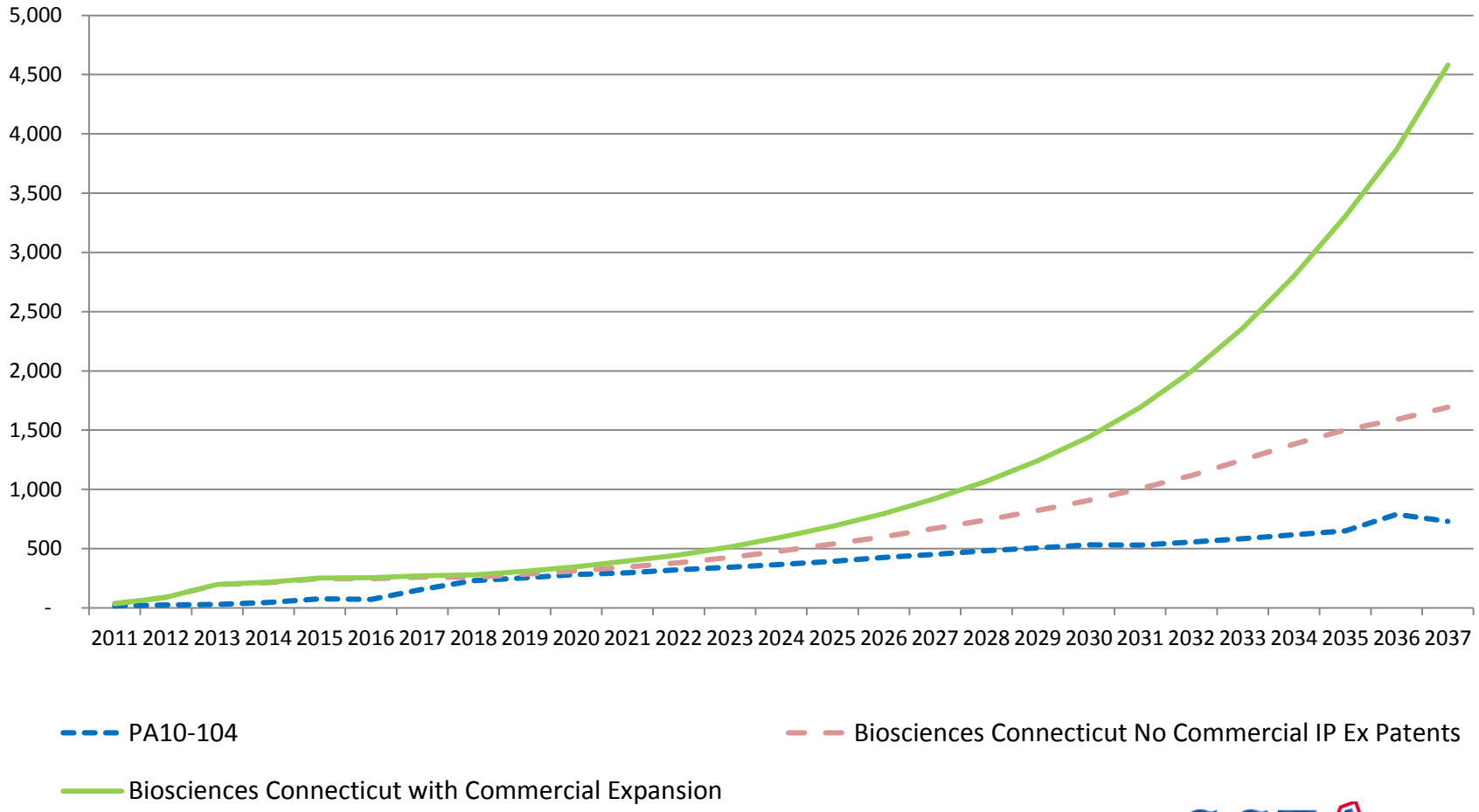
Expected Developments With and Without Biosciences: PI (Millions Current $)



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Addition of JAX-GM

- New Lab on Campus
- Matches UConn Investment
- Hiring synergies
- Now expected to double Investment
- Incremental employment impacts at full operation

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JAX-GM Targets and Performance

- At end of December 2017 JAX-GM is expected to house 311 employees of whom 309 work for JAX-GM and two for collaborators
- Well ahead of its initially projected 2017 employment target of 248 to say nothing of zero in CCEA's spin-off scenarios
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- In 2017, JAX-GM capital and operating expenditures are expected to reach $37.4 million
- This direct economic activity would not have happened without the Biosciences Center which attracted JAX-GM to Connecticut
- These impacts can be added to those of the School of Medicine and Dentistry's impacts while avoiding the double counting for three senior joint appointments

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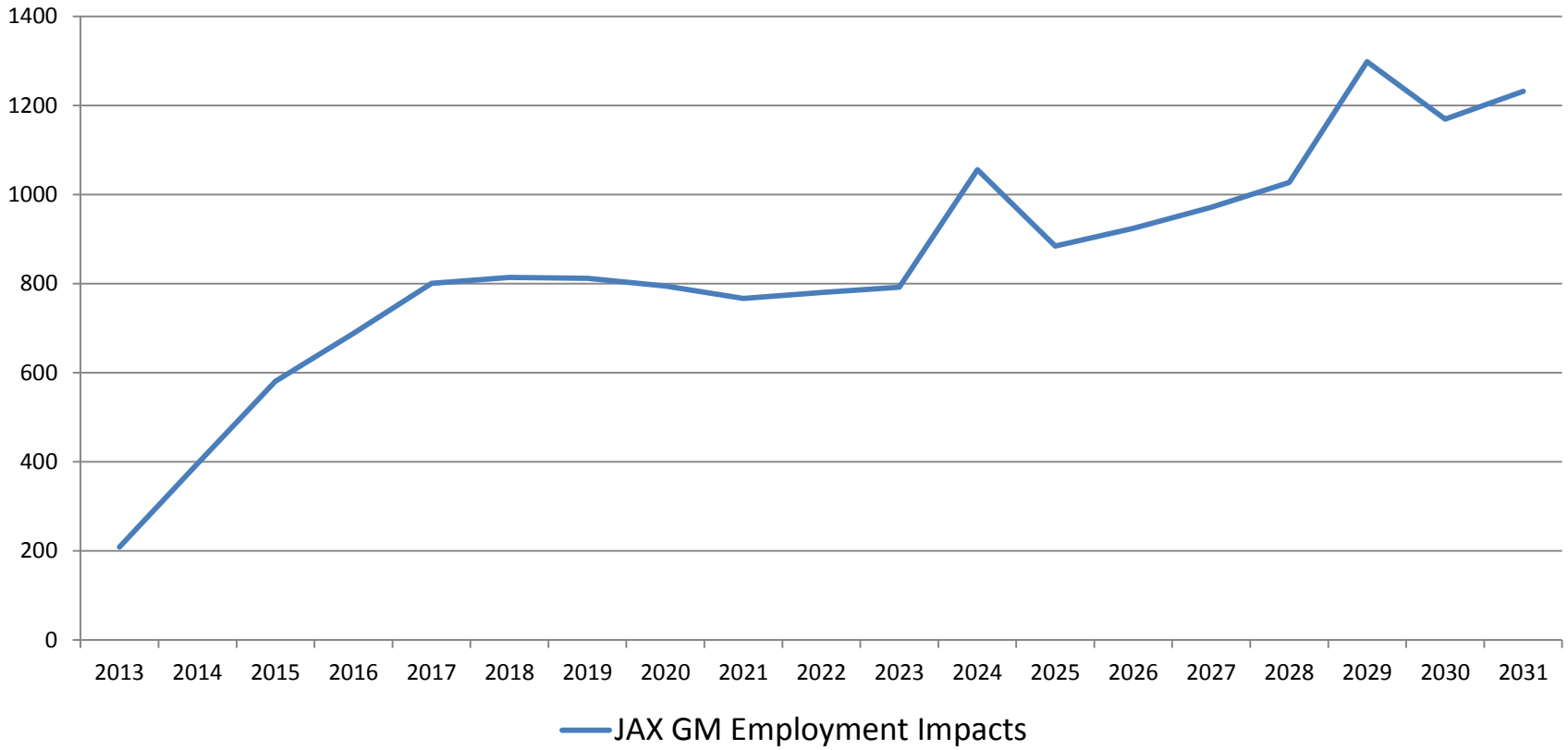
JAX-GM Expected Performance: Employment (Jobs)



JAX-GM Expected Performance: Pi (Millions of Current $)

Stem Cell and Amniotic Treatments: Background (1)

- Average cost of knee replacements in Connecticut is $35,557, just $14 above national averages
- Plus recuperation time requires about $4,000 in lost income
- If the problem is caught soon enough, stem cell and amniotic treatments may rebuild the cartilage for $8,500
- UConn has developed patents for this procedure.

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Stem Cell and Amniotic Treatments: Background (2)

- This section treats UConn's procedures as substitutes for knee replacements
- An institute handling 40 patients a week in the first year and 50/week thereafter could be duplicated every two years
- Reduces the current waiting list of 100,000 awaiting knee surgeries in CT.
- Savings of $62.4 million in year 1 and $78 million annually thereafter

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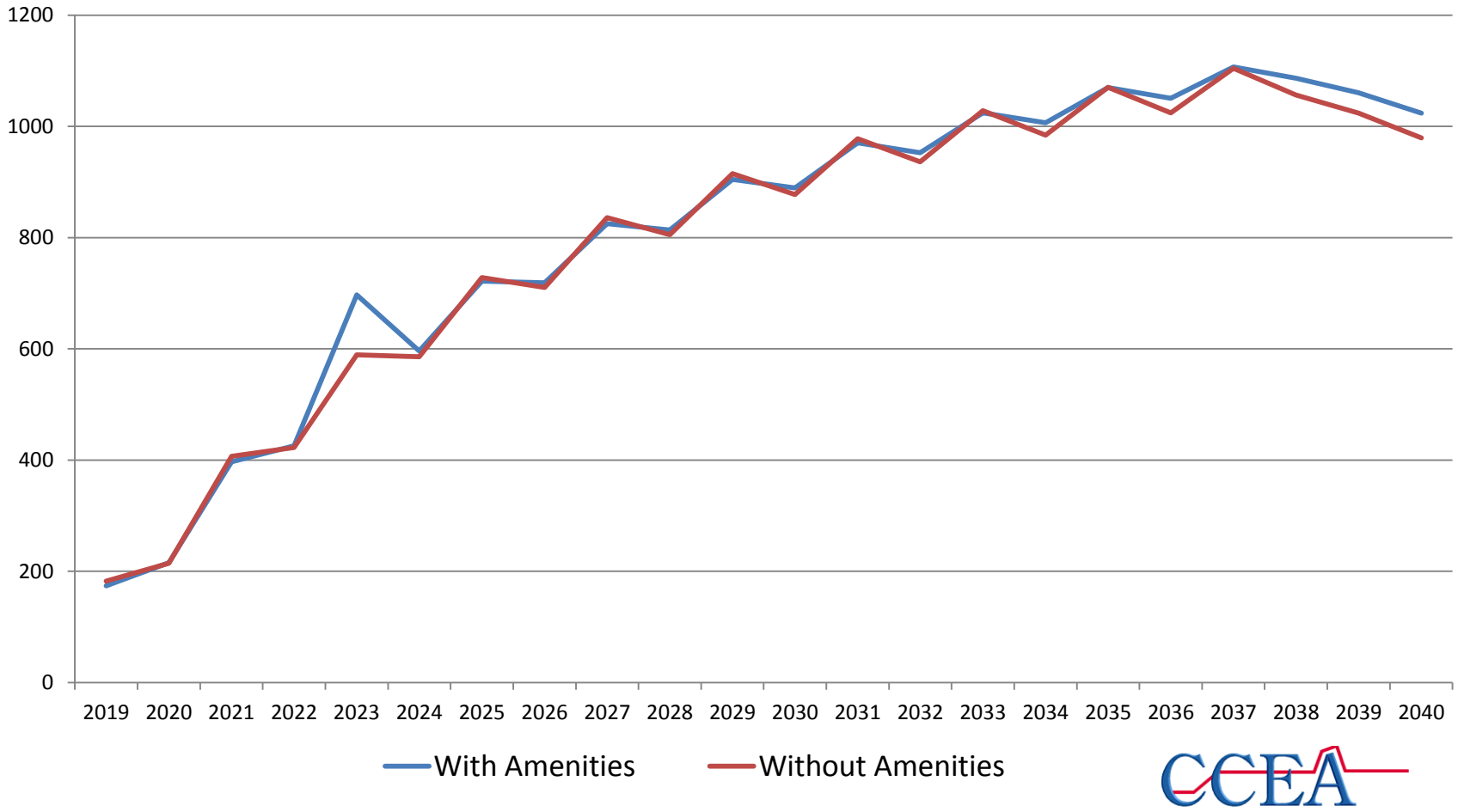
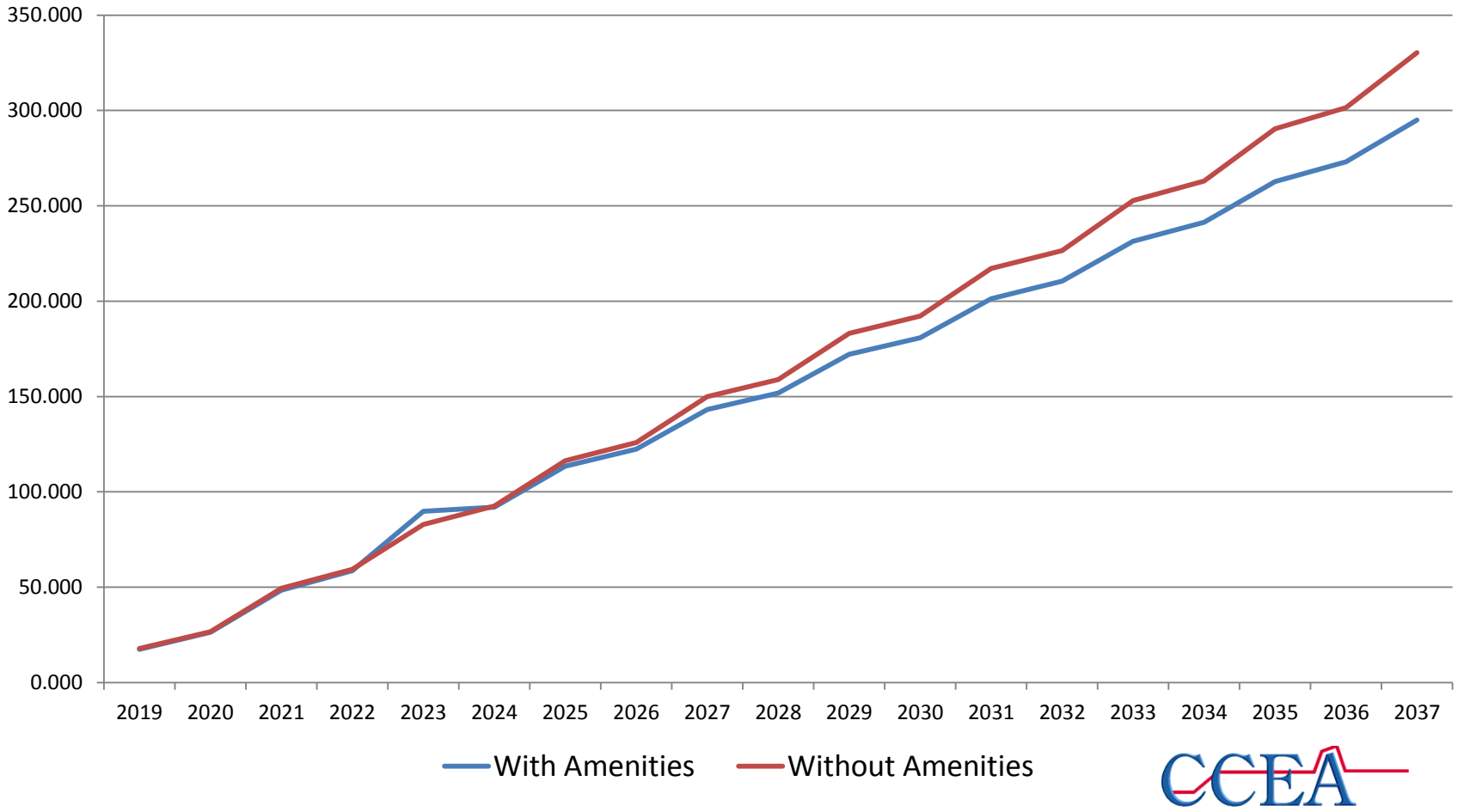
Stem Cell and Amniotic Treatments: Employment (Jobs)



Stem Cell and Amniotic Treatments: PI (Millions of Current $)



Importance of the Biosciences Center

- In 2019, total CT expected incremental employment impacts are expected to reach 3,155
- Generate $403.3 million in PI for an average of $127,829 per job.
- PI generated by these combined projects in 2019 is expected to generate 1.5% of all Connecticut PI.

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